CHAPTER 5

PLANNING STUDIES

5-1. Authorization of Studies.

a. Authorization. The Corps undertakes studies of water and related land resources problems and opportunities in response to directives, called authorizations, from the Congress. Congressional authorizations are contained in public laws, and in resolutions of either the House Transportation and Infrastructure Committee or the Senate Environment and Public Works Committee. Study authorizations are either unique, study-specific authorities; or standing, program authorities, usually called continuing authorities, under which specific studies related to the program authority may be done at the discretion of the Secretary of the Army or the Chief of Engineers. The focus of the studies is on determining whether a Federal project responding to the problems and opportunities of concern should be recommended, within the general bounds of Congressional interest in authorizing Federal participation in water resources development (see paragraph 6-1).

b. Naming. Whenever the name of a project is established by separate legislation, that designation shall be used exactly as stated in the law. Otherwise, study and project titles will be assigned during the reconnaissance or feasibility study, based on a nearby geographic feature; i.e., town, river or mountain. Projects which impound water are designated as "lakes".

c. Deauthorization. Section 710 of the Water Resources Development Act (WRDA) of 1986 (PL 99-662) specifies that authorized studies will be deauthorized if study funds have not been appropriated for five fiscal years preceding the submission of the annual list, and if funds are not appropriated within 90 days of submittal of the list. Section 1001 of that act specifies a similar mechanism for deauthorization of projects (authorized for construction).

5-2. Types of Planning Studies. There are several types of planning studies as discussed in the following paragraphs. Most studies are conducted in two phases and include the reconnaissance phase and the feasibility phase.

a. Reconnaissance Phase. The reconnaissance phase is fully funded by the Federal Government and is usually completed in 12 months.
The reconnaissance phase shall accomplish the following four essential tasks:

(1) Determine that the water and related land resources problem(s) warrant Federal participation in feasibility studies. Defer comprehensive review of other problems and opportunities to feasibility studies;

(2) Define the Federal interest based on a preliminary appraisal consistent with Army policies, costs, benefits and environmental impacts of identified potential project alternatives;

(3) Prepare a Management Plan; and,

(4) Assess the level of interest and support from non-Federal entities in the identified potential solutions and cost sharing of the

feasibility phase and construction. A letter of intent from the non-Federal sponsor stating the willingness to pursue the feasibility study described in the Management Plan and to share in the costs of construction is required.

The reconnaissance phase is completed upon the signing of the Feasibility Cost Sharing Agreement (FCSA) by the Corps and the non-Federal sponsor. The feasibility study cannot be initiated until the FCSA is signed.

b. Feasibility Phase. The feasibility phase can take up to four years to complete and is cost shared equally between the Federal Government and the non-Federal sponsor. At least 50 percent of the non-Federal share (25 percent of the total feasibility phase cost) will be in cash; the remaining 50 percent of the sponsors share may be contributed as in-kind products or services. Feasibility phase cost sharing is not applicable to navigation studies on the Nation's inland waterways. The non-Federal cost share for feasibility studies in American Samoa, Guam, Northern Mariana Islands, Virgin Islands, and the Trust Territory of the Pacific Islands, is reduced by $200,000 for each study (Section 1156 of WRDA 1986). The report results in recommendations to Congress for or against Federal participation in solutions to the water and related land resources problems and opportunities identified in the study. A recommendation for Federal participation is generally a recommendation for construction authorization.

c. Legislative Phase I Studies. This is a special type of study, where only continuation of planning, rather than construction, was authorized for selected projects in the WRDAs of 1974 (Public Law 93-251) and 1976 (Public Law 94-587). For these studies, which are subject to a two-stage authorization process, a new feasibility report would be submitted to Congress for construction authorization.

d. Review of Completed Projects Studies. This type of study is in response to the standing authority of Section 216 of the Flood Control Act of 1970, which authorizes studies to review the operation of completed Federal projects and recommend project modifications "when found advisable due to significantly changed physical or economic conditions... and for improving the quality of the environment in the overall public interest". An initial appraisal is conducted using Operation and Maintenance (O&M), General funds to determine whether or not a study is warranted. If it is determined that further study is warranted, these studies are conducted in the two phase study process in the same manner as feasibility studies.

e. Continuing Authorities Studies. These types of studies are in response to one of the body of standing study and construction authorities listed in Table 2-1. With some exceptions, they are conducted in the same two-phase study process as feasibility studies specifically authorized by Congress.

5-3. Preconstruction Engineering and Design (PED). Continuation of planning efforts following completion of the feasibility report is discussed in Chapter 9. The PED phase (including preparation of the General Reevaluation Report (if needed), Design Memorandums and Plans and Specifications) will be cost shared in accordance with the authorized construction cost sharing for the project. During the PED phase, non-Federal financial contributions are to be 25 percent of the total PED cost, with offsetting credits or debits during the first year of construction.

5-4. Planning Assistance to States. Section 22 of Public Law 93-251 authorized cooperation with states in the preparation of comprehensive plans for the development, utilization and conservation of the water and related resources of drainage basins located within the boundaries of the state. Expenditures in any one state cannot exceed $500,000 in any one year, as amended by Section 221 of WRDA 1996. Federal input to the state planning program is on an effort or service basis in lieu of an outright grant. Section 214 of Public Law 89-298 and Section 204 of Public Law 91-611 provide separate authority to undertake studies in New York and Puerto Rico; however, funding for planning assistance to New York and Puerto Rico shall ordinarily be funded under Section 22. Section 605 of Public Law 96-597 defines the Virgin Islands and the territories in the Pacific as "states" for the purpose of eligibility under Section 22 of Public Law 93-251. Section 319 of WRDA 1990 authorizes the Corps to establish, collect, and expend appropriate fees from states and other non-Federal public bodies to recover approximately 50 percent of the total cost of providing assistance under the Planning Assistance to States Program. Section 208 of WRDA 1992 gives federally-recognized Indian Tribes the same status as states and territories under the Planning Assistance to States Program.

5-5. Corps Planning Guidance. Detailed planning guidance essential for the conduct of Corps planning studies is contained in ER 1105-2-100 which incorporates the Water Resources Council’s (WRC) Principles and Guidelines (P&G) in its entirety.

5-6. The Planning Process. The WRC’s P&G state that "the Federal objective of water and related land resources project planning is to contribute to national economic development consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements." Accordingly, this is the primary objective of the Federal water resources planning process. Ecosystem restoration is a Federal planning requirement and a Corps priority mission. In water and related resources planning which involves restoration of ecosystems, contributions are to National Ecosystem Restoration (NER). As required by the P&G, and with the advent of non-Federal study cost sharing, state and local water resource objectives are also incorporated into the planning process. The planning process consists of a series of steps that identify and respond to the problems and opportunities associated with the Federal objective and specific state and local concerns and culminates in the selection of a recommended plan.

a. Major Planning Steps. The planning process consists of the following six major steps:

(1) Specify Problems and Opportunities. The problems and opportunities statements should be framed in terms of the Federal objective and specific state and local concerns. The statements should be constructed to encourage a wide range of alternative solutions with identifiable levels of achievement. Statements should encompass current as well as future conditions and the planner should be cognizant that initial expressions of problems and opportunities may need to be modified during the study.

(2) Inventory and Forecast of Conditions Without a Plan. The inventory and forecast step quantifies and qualifies the planning area resources important to the identified water resources problems and opportunities, now and in the future in the absence of a plan. This

step is a statement of the without project condition. It is the most important step in the planning process because it is the baseline from which alternative plans are formulated; benefits are measured; and impacts are assessed. Since benefits and impact assessment are the bases for plan comparison and selection, clear definition and full documentation of the without project condition are essential. For ecosystem restoration studies, inventory and forecast of past, present and future environmental conditions require that some form of qualitative measurement be defined and used. Where indicators or other units of measure of ecosystem function or structure are used, the models used to develop them must be fully described.

(3) Formulate Alternative Plans. An alternative plan consists of a system of structural and/or nonstructural measures, strategies, or programs formulated to alleviate specific problems or take advantage of specific opportunities associated with the water and land related resources in the planning area. Alternative plans are to be formulated in a systematic manner to ensure that all reasonable alternative solutions are evaluated. A full range of alternative plans are identified at the beginning of the planning process and are screened and refined in subsequent iterations throughout the planning process. However, additional alternative plans may be introduced at any time. In the reconnaissance study, the potential non-Federal sponsor should be apprised of the need to develop alternative plans during the feasibility study and the cost of the analyses to be undertaken. A plan that reasonably maximizes net national economic development (NED) benefits, consistent with protecting the nation's environment, is to be identified as the NED Plan in the feasibility report. Other plans which reduce net NED benefits in order to further address other Federal, state, local and international concerns should also be formulated. Specifically, plans contributing to ecosystem restoration may be formulated. Plans should be in compliance with existing statutes, administrative regulations, and common law or propose the required changes in law. Each alternative plan is to be formulated in consideration of four criteria described in the P&G: completeness, efficiency, effectiveness, and acceptability. Appropriate mitigation of adverse effects is to be an integral part of each alternative plan. Existing resources plans, such as state water resources plans, are to be considered as alternative plans if they are within the scope of the planning effort.

(4) Evaluate Effects. The evaluation of effects is a comparison of the with- and without-plan conditions for each alternative. The evaluation is conducted by assessing or measuring the differences between each with- and without-plan condition and by appraising or weighting those differences. Four accounts are established to facilitate evaluation and display effects of alternative plans.

(a) The national economic development (NED) account displays changes in the economic value of the national output of goods and services.

(b) The environmental quality (EQ) account displays nonmonetary effects on ecological, cultural, and aesthetic resources. Positive and adverse effects of ecosystem restoration plans are displayed in the EQ account as separate entries.

(c) The regional economic development (RED) account registers changes in the distribution of regional economic activity (i.e., income and employment).

(d) The other social effects (OSE) account registers plan effects from perspectives that are relevant to the planning process, but are not reflected in the other three accounts (e.g., community impacts, health and safety, displacement, and energy conservation).

(e) Display of the national economic development account is required. Since technical data concerning benefits and costs in the NED account are expressed in monetary units, the NED account already contains a weighting of effects; therefore, appraisal is applicable only to EQ, RED and OSE evaluations. The period of analysis is to be the same for each alternative plan. Planners shall also identify areas of risk and uncertainty in their analyses and describe them clearly, so that decisions can be made with knowledge of the degree of the reliability of the estimated benefits and cost and of the effectiveness of alternative plans. Flood damage reduction, storm damage reduction, deep-draft navigation and major rehabilitation studies will be performed using a risk-based analytical framework. This framework captures and quantifies the extent of the risk and uncertainty, and enables quantified trade-offs between risk and cost.

(5) Compare Alternative Plans. Plan comparison focuses on the differences among the alternative plans determined in the evaluate effects step. Differences should be organized on the basis of the effects in the four accounts. Monetary and nonmonetary effects should be comparably represented in narrative or display.

(6) Plan Selection. The culmination of the planning process is the selection of a recommended plan or the decision to take no action. After consideration of the various alternative plans, their effects, the sponsor's and public comments, the NED plan is selected unless an exception is justified and granted by the Assistant Secretary of the Army. For plans having only ecosystem restoration outputs, the plan with the greatest net ecosystem restoration benefits, and for plans having both economic and restoration benefits, the plan with the greatest net sum of economic and restoration benefits is to be selected, consistent with both protecting the Nation’s environment and Secretarial exception.

b. Iteration. Planning is a dynamic process requiring refinement and refocusing during the course of the study. Planners should be flexible and responsive to internal and external data development which could necessitate a reiteration of one or more of the planning steps.

c. Two-Phase Planning Process. Studies are generally to be conducted under the two phase planning process. The two-phase planning process consists of: (1) a reconnaissance phase culminating in a certified Section 905(b) of WRDA 1986 Analysis and the negotiated feasibility cost sharing agreement, and (2) the feasibility phase resulting in the Corps feasibility report, expression of related views by the Office of Management and Budget, and the ASA(CW) report to the Congress. An expedited reconnaissance phase process was implemented in FY 97. The new process will result in a Section 905(b) of WRDA 1986 Analysis of limited scope that complies with the requirements for signing the FCSA. Most of the reconnaissance phase effort and funds will be devoted to the preparation of the Project Study Plan (PSP).

d. General Planning Considerations.

(1) Interdisciplinary Planning. An interdisciplinary approach should be used in planning to ensure the involvement of physical, natural and social sciences personnel. The disciplines of the planners should be appropriate to the problems and opportunities identified in the planning process.

(2) Public Involvement. Interested and affected agencies, groups, and individuals (collectively termed the public) should be provided opportunities to participate throughout the planning process. The purpose of public involvement is to ensure that Federal programs are responsive to the needs and concerns of the public. The objectives of public involvement are to provide information about proposed Federal activities to the public; make the public's desires, needs, and concerns known to decision makers; to provide for consultation with the public before decisions are reached; and to take into account the public's views in reaching decisions. Public involvement and coordination with certain agencies (e.g., U.S. Fish and Wildlife Service) is statutorily required in the planning process. Coordination with other agencies and potential non-Federal sponsors should be initiated as early in the planning process as possible.

(3) Federal-State Relationship in Planning. The governor or his or her designated representative for each affected state is to be contacted before initiating a study and such agreements as are appropriate to carry out a coordinated planning effort are to be established. The state agency or agencies responsible for or concerned with water resource planning are to be provided with the opportunity to participate on the study management team in defining the problems and opportunities, scoping the study, and in review and consultation.

5-7. Procedures for Evaluating NED. Procedures for evaluating NED benefits of alternative plans are prescribed in P&G, Chapter II (incorporated in Corps planning guidance as part of ER 1105-2-100).

a. Period of Analysis. The period of analysis for comparing costs and benefits following project implementation shall be the lesser of: (1) the period of time over which any alternative plan would have significant beneficial or adverse effects; or (2) a period not to exceed 50 years except for major multiple-purpose reservoir projects; or (3) a period not to exceed 100 years for multiple-purpose reservoir projects.

b. Price Level. Project NED benefits and costs must be compared at a common point in time. (P&G 1.4.10)

c. Cost Estimating Procedure. Resources required or displaced to achieve project purposes by project installation and/or operation, maintenance, and replacement activities represent an NED (real) cost and are evaluated as such. Resources required or displaced to minimize adverse impacts or mitigate environmental losses are also evaluated as NED costs. Costs incurred for features other than those required for project purposes are not project costs and therefore not NED costs. (P&G 2.12, ER 1110-2-1302)

(1) Real and Financial Costs. Two concepts of cost are used in Federal planning. The two are related but distinct; care must be taken in their use. The two concepts are real cost and financial cost, and each has several synonyms. Synonomous with real cost is

economic cost, NED cost, alternative cost, opportunity cost, resource cost and exchange value. Real costs are values of resources. Resources are valued at their opportunity costs, that is their value in the best alternative use. Opportunity cost is the conceptual basis for cost in economic analysis. Real costs are used exclusively in all aspects of benefit-cost analysis, including benefit-cost ratios. Monetary cost and accounting cost mean the same as financial cost. Financial costs are any money outlays or accounting transactions or entries whether or not they are payments for resources. Therefore, it follows that the presence of financial payments do not necessarily imply the presence of real costs.

(2) Project Outlays. The real costs of project outlays include the costs incurred by the responsible Federal entity and, where appropriate, contributed by other Federal and non-Federal entities to construct, operate, maintain, repair, replace, and rehabilitate a project in accordance with sound engineering and environmental principles. These costs include:

(a) Postauthorization Investigation, Survey, Planning and Design Costs. These costs are estimated based on actual current costs incurred for carrying out these activities for similar projects and measures.

(b) Construction Costs. These costs include the direct cost of project measure installation goods and services. They are estimated based on current contract bid items in the project area or on the current market value of purchased materials and services, etc.

(c) Construction Contingency Costs. These are costs added to estimates to reflect the effects of unforeseen conditions on estimates of construction costs. They are computed as a percentage of the estimated construction cost depending on the intensity of the investigations performed, the variability of site conditions, and the type of measure being installed.

(d) Administrative Services Costs. These are costs associated with the installation of project measures, including the cost of contract administration, permits, inspection, etc. Estimates of these costs are based on current costs of carrying out these activities on similar projects or as a percentage of the construction cost when such a rate is documented.

(e) Fish and Wildlife Habitat Mitigation Costs. These are the costs involved in implementing measures recommended to mitigate losses of fish and wildlife habitat caused by project construction, operation, maintenance, and replacement. The cost of implementation of these measures is assumed to be expended concurrently and proportionately with their related project measures.

(f) Relocation Costs. These are project costs associated with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646); and the relocation of highways, railroads, utilities, and other existing facilities. Real property acquisition relocation payments are applicable to a displaced person, business or farm operation. The NED cost of replacement housing is based on replacement in kind. Costs over and above replacement in kind are not considered economic costs for purposes of project evaluation. The relocation costs of railroads and utilities shall be based on the costs of replacement in kind. In the case of highways, the relocation cost shall be based on

replacement that reflects the current traffic count and current standards of the owner. (ER 1165-2-117, ER 405-1-12, EFARS)

(g) Historical and Archaeological Salvage Operation Costs. These are project costs associated with salvaging artifacts that have historical or archaeological values as described in Public Law 86-523 as amended. (See paragraph 3-4)

(h) Land, Water and Mineral Rights Costs. These costs include all costs of acquiring the land, water and mineral rights required for installing, operating, maintaining and replacing project measures. These costs are estimated based on current market values and the actual costs incurred for carrying out similar acquisitions. The value of easements is based on the difference in market value of the land with and without the easement.

(i) Operation, Maintenance, Repair, Replacement and Rehabilitation Costs (OMRR&R). These costs represent the current value of materials, equipment, services, and facilities needed to operate the project and make repairs, replacements, and rehabilitations necessary to maintain project measures in sound operating condition during the period of analysis. Estimates are based on actual current costs incurred for carrying out these activities for similar projects and project measures. For those projects currently in Preconstruction Engineering and Design (PED), and those with Project Cooperation Agreements (PCAs) yet to be submitted to HQUSACE as of 7 February 1991, estimates of OMRR&R costs and schedules will need to be individually set out in the technical document that accompanies the PCA and addressed in the non-Federal sponsor's financing plan. In particular, estimates for Operation and Maintenance and for future Repair and Rehabilitation must be emphasized. Non-Federal sponsors need to specifically show their capability to fund such costs in their financing plans accompanying PCA packages. For projects in the initial stages of development, the Project Management Plan is to include procedures for developing detailed OMRR&R costs.

(3) Associated Costs. These are costs other than those involved directly in establishing, maintaining, and operating the project, but necessary for realization of certain benefits of the project. An example is the cost of on-farm drainage systems required to produce the increased outputs on which benefit computations are based.

(4) Other Direct Costs. These are the costs of resources directly required for a project or plan, but for which no financial outlays are made. Consequently, they are included in the economic costs of a plan but not in the financial costs. Other direct costs also include uncompensated NED losses caused by the installation, operation, maintenance, or replacement of project or plan measures. An example would be increased downstream flood damages caused by channel modification.

d. Benefit Estimating Procedures. Beneficial effects in the NED account are increases in the economic value of the national output of goods and services. These beneficial effects include: the direct value of goods and services resulting from implementation of a plan; increases in external economies caused by implementation of a plan; and the value associated with the use of otherwise unemployed or underemployed labor resources. (P&G 1.2 and 1.7.2)

(1) Value of Goods and Services Resulting from a Plan. The specific procedures for computing these NED benefits are presented in P&G, Chapter II. Provision is made for computing other benefits when documented in the planning report and consistent with P&G 1.7.2(b). That reference sets forth the general measurement standard: willingness to pay as conceptually measured by the area under the demand schedule. Since it is not possible in most instances for the planners to measure the actual demand schedule, four alternatives are permitted:

(a) Actual or Simulated Market Price. Where the market is considered reasonably adequate and competitive, the value of outputs is based on probable exchange values that are determined by supply and demand factors, and expressed in monetary terms by means of price, at the time of project construction. Where project output is substantial and is expected to influence market prices, a price midway between that expected with and without the plan may be used to estimate the total value. The appropriate market value for certain principal agricultural commodities is specified by the WRC.

(b) Change in Net Income. The benefit is measured by the value of output of intermediate goods as inputs to producers with, as compared to without, the plan.

(c) Cost of the Most Likely Alternative. The expected costs of production by the most likely alternative source that would be utilized in the absence of the project may serve as a basis for measuring the value of goods and services.

(d) Administratively Established Value. Administratively established values are values for specific goods and services explicity set and published by WRC. An example is the unit-day value for recreation.

(2) Unemployed or Underemployed Labor Resources. These benefits are conceptually an adjustment to the cost of the project, because there is no economic cost associated with the use of an otherwise unemployed resource. Benefits are limited to payments to unemployed and underemployed labor resources directly employed in the construction and installation of the plan for projects in areas designated by WRC as having "substantial and persistent" unemployment. (P&G 2.11)

e. Risk and Uncertainty. The degree of risk and uncertainty associated with the project evaluation is displayed in a manner that makes clear to decision makers the types and degrees of risk and uncertainty believed to characterize the project; the adjustments in project design that could be made to modify the degree of risk and uncertainty; and the gains and losses in various dimensions that might accrue from those adjustments. The guidelines (P&G 1.4.13) state that planners have a role to characterize to the extent possible the different degrees of risk and uncertainty and to describe them clearly so decisions can be based on the best available information. A risk-based approach to water resources planning captures and quantifies the extent of risk and uncertainty in the various planning and design components of an investment project. The total effect of risk and uncertainty on the project’s design and economic viability can be examined and conscious decisions made reflecting an explicit trade-off between risk and costs. Risk-based analysis can be used to compare plans in terms of the likelihood and variability of their physical performance, economic success and residual risks.

f. Net Economic Benefit Analysis.

(1) NED Plan. Net national economic benefits, the difference between average annual benefits and average annual cost, is an indicator of economic efficiency. The plan which provides for the maximum net benefits is the NED plan. The Federal objective in water resources planning other than for environmental restoration purposes is achieved by maximizing net benefits in plans that are consistent with protecting the nation's environment. A plan other than the NED plan may be recommended if it would help respond to other international, national, state or local concerns. Its acceptance, however, requires an exception by ASA(CW) to the Federal NED objective (during processing of the Federal preauthorization report before submittal to Congress). The NED plan must be formulated, evaluated, displayed, and carried forward in selectable form, even if it is not the recommended plan.

(2) Determination of Net Economic Benefits. NED benefits and costs are calculated at a common point in time, the end of the installation period. This is accomplished by discounting the benefits, deferred installation costs, and OMRR&R costs to that date using the applicable project discount rate and bringing installation expenditures forward to that date by charging compound interest at the project discount rate from the date the costs are incurred.

(3) Interest and Discount Rate. The interest rate for discounting future benefits and computing costs, or otherwise converting benefits and costs to a common time basis, is specified annually by the Water Resources Council, pursuant to Section 80 of WRDA 1974. Currently, however, HQUSACE obtains the rate directly from U.S. Treasury Department. Under the existing formula it represents the average yield during the preceding fiscal year on interest-bearing marketable securities of the United States which, at the time the computation is made, have terms of 15 years or more to maturity. The rate may not be raised or lowered more than one quarter of one percent for any year. The computation is made as of 1 October each year by the Treasury Department and the rate thus computed is used during the succeeding 12 months. Present policy for projects which have received appropriations for construction is that the interest rates used to prepare the supporting economic data presented to Congress in justification of the initial appropriation of construction funds (including land acquisition) will be retained in making subsequent evaluations. This is a long standing administrative policy not to be confused with the statutory "grandfather" clause in Section 80 of the 1974 Act. Section 80 freezes the interest rates at the rate in effect immediately prior to 24 December 1968 for projects authorized prior to 3 January 1969 provided satisfactory assurances of local cooperation were received by 31 December 1969. The administrative policy agrees with the intent and purpose of the grandfather provision of Section 80. It recognizes that local interests may have undertaken financial arrangements or other actions in anticipation of the project. The appropriation of construction funds implies a commitment and raises a strong and reasonable expectation that the project will be built. If after initiation of construction, reformulation studies indicate that another alternative solution to the basic problem is desirable, the current discount rate is applicable to the new solution. Partial reformulation to consider adding a new purpose or expanding an existing purpose, to a project under construction, would also use the current discount rate. An exception would be the addition of fish and wildlife mitigation to an authorized project, for which it is permissable to use the discount rate applicable to the authorized

project. Reimbursement rates are based upon the computed rates except for water supply, recreation and irrigation for which rates are specified by legislation.

5-8. Procedures for Evaluating Environmental Quality (EQ) Outputs. Environmental planning is more similar to traditional water resources planning than it is dissimilar. Only two important differences between planning for environmental outputs and planning for NED outputs exist. Both result from the absence of readily estimated and generally accepted monetized environmental benefits. This absence means environmental outputs' worth must be based on some other sense of value, and following from this, that a decision rule for identifying best projects completely analagous (simple, quantified, objective) to the NED decision rule does not exist. A reasonable and workable decision rule can be developed however. In most other respects planning for environmental outputs is the same as for NED outputs.

a. Missions. Outputs considered Corps priority outputs change or evolve over time. Chronologically, these descriptors have been used to give specificity to, identify and label Corps environmental missions: "mitigation", "fish and wildlife habitat restoration", "protection", and "ecosystems restoration". Regardless of how narrowly or broadly the mission is described, and how the range of environmental outputs for which planning may be conducted is modified, the same planning considerations and principles apply.

b. Planning Considerations. Paragraph 5-6 (above, "The Planning Process") applies generally to planning for environmental outputs. Alterations are in some cases appropriate. For example, for mitigation, specification of problems and opportunities would be truncated. Those portions of paragraph 5-7 (above, "Procedures for Evaluating NED") that deal specifically with monetized benefit estimation are not relevant. Much of the rest of the paragraph is relevant.

c. Special Emphasis. Risk of redundancy notwithstanding, several planning considerations are worth special emphasis. First, environmental planning is quantified planning. Outputs should be precisely defined, with appropriate units of measurement. Second, formulation of alternative plans and plan scales is as much a part of environmental planning as it is for NED planning. All or nothing, or inappropriately limited options available for decision makers is not acceptable. Third, a justified plan is to be recommended. The incremental cost analysis/cost effectiveness technique is an acceptable tool for identifying the most cost effective and efficient environmental restoration plan. The rationale for justification and selection of a recommended plan must be fully documented and reasonable.

d. EQ Planning Procedures. Detailed environmental quality planning procedures (i.e., how to do it) similar to those for NED evaluation (i.e., the NED Manuals) have been developed as well as comprehensive environmental restoration policy and procedures guidance (i.e., what to do, with some how to do it information). The following three key ideas, or fundamentals, from that guidance form a cursory analysis.

(1) Outputs. Environmental projects produce outputs. These outputs are precisely defined, unambiguous and quantitative. Examples might be habitat units of a particular species; habitat units of a mix

of species representing a specified and recognized resource type, ecosystem, community, etc.; biodiversity as expressed by changes in biodiversity index "alpha"; and so on. Corps environmental projects produce changes in the number of units of specified outputs: habitat units, value of an index.

(2) Significance. Significance is the environmental counterpart to monetized NED benefits. It is the basis for valuing the worth of outputs. Significance is established using standard categories and criteria. The categories within which significance arguments are made and evidence presented, as established by the WRC, are legal/institutional, scientific/technical, and public perception. Supplementing the WRC categories the Corps adds the idea of scarcity. In other words, continuing scarcity is a necessary component of significance. Outputs of Corps projects must be significant. The significance of outputs is the justification for Corps environmental investments, just as monetized benefits are the justification for traditional water resources projects. Significance arguments must be substantial and documented.

(3) Cost Effectiveness. Each plan and each plan scale eligible for recommendation must be the least cost way of achieving its level of output. Furthermore, the cost effectiveness of plans and plan scales should be supported by documentation. This will frequently mean recognized techniques for formulating or discovering/isolating cost effective plans should be employed. Except in simple cases, cost effective plans and plan scales can not be formulated or discovered/isolated by intuition, negotiation or trial and error. Plans developed in these ways may be good plans, but they can not usually be demonstrated to be cost effective plans.

e. Environmental Restoration Projects and Recreation. Environmental restoration projects are not recreation projects. Formulation proceeds for environmental outputs and justification is based on the relative value of the those outputs. Recreation associated with the outputs may be important ancillary information. Except in true mulitple-purpose projects, recreation is not the principal justification.

f. Decision Rule for Environmental Projects. The decision rule is to recommend a justified environmental project. The best environmental project is that project for which the value, as based on significance and scarcity, of the last added increment of output just equals the (minimum) cost of producing that increment. Another plan or plan scale may be recommended as long as it is justified, and the tradeoffs when compared to the best environmental project are evident and reasonable.

5-9. Selection of a Recommended Plan. The planning process leads to the identification of alternative plans that could be recommended; one of which is to be designated as the NED plan, or the plan for projects with environmental restoration outputs only, and/or the plan for projects with economic and environmental restoration outputs (multi-purpose). The culmination of the process is the selection of the recommended plan from among the alternatives, or the decision to take no action. This selection is based on a comparison of the evaluated effects (NED, environmental, social, regional; tangible or intangible) and consideration of how well each plan meets tests of completeness, effectiveness, efficiency and acceptability and how well they meet the planning objectives. For Federal development, the NED plan, the plan for single-purpose environmental restoration projects

or the plan for multi-purpose economic and environmental restoration projects, is to be recommended unless there are believed to be overriding reasons favoring the selection of another alternative which would justify an exception by ASA(CW). In cases where local interests strongly favor a plan other than the Federally supportable plan (NED plan, plan for single purpose environmental restoration, plan for multi-purpose economic and environmental restoration projects, or ASA(CW) granted exception) the locally preferred plan may be recommended subject to special cost sharing.

a. ASA(CW) Exceptions. ASA(CW) granted exceptions are cost shared on the same basis as the NED plan (i.e., in accordance with project cost sharing as outlined in Chapter 6) and becomes a Federally supportable plan. Circumstances which would support a recommendation for such an ASA(CW) exception and in which such exception would most likely be granted are:

(1) When another justified plan, less costly than the NED plan, is the locally preferred plan.

(2) When the local sponsor prefers a plan more costly than the NED plan and the incremental costs for the increased development are not justified, that plan may be recommended if the sponsor is willing to pay 100 percent of the difference in costs between the Federally supportable plan and the locally preferred plan. (The balance of costs would be shared in accordance with policies outlined in Chapter 6.) The increment of cost between the Federally supportable plan and the locally preferred plan will not be included in the benefit-cost ratio calculation for the recommended project, but designated as a sponsor's adjunct costs. Also, the locally preferred plan must have outputs similar in-kind, and equal to or greater than, the outputs of the Federally supportable plan.

5-10. Indian Lands. Indian Tribal Lands, which have been set aside by treaty, may be acquired by eminent domain only where there is a clear expression of congressional intent to abrogate or modify the treaty. Pre-authorization reports must clearly identify Indian Tribal Lands to be acquired to ensure that sufficient congressional authority is stated.

5-11. Cost Allocation.

a. Objective. The objective of the cost allocation is to divide the project costs among the purposes served so that all purposes share equitably in the savings realized from multipurpose construction. In order to obtain an equitable distribution, the project costs are allocated so that it can be determined that the share of the costs to any purpose does not exceed its benefits and that each purpose will carry at least its separable cost. A preliminary cost allocation will be included in the feasibility report.

b. Legislation. There is no uniform cost allocation method established by law. For the hydropower function, Section 5 of the 1944 Flood Control Act established that power costs should be repaid through revenues. For municipal and industrial (M&I) water supply, the Water Supply Act of 1958, as amended, allows for repayment over a period of thirty years. However, current policy is for investment cost allocated to hydropower and water supply to be paid during construction. Existing law does not assign responsibility to any one agency for making allocations of cost, except for a few projects

covered by specific legislation. Thus, the agency responsible for planning, constructing, operating, and maintaining the project is assumed to be responsible for the cost allocation.

c. Administrative Procedures. An inter-agency agreement, 12 March 1954, among the Departments of Army and Interior and the Federal Power Commission recognized three methods of allocation as acceptable for multipurpose reservoir projects. These were the Separable Costs-Remaining Benefits (SCRB), the Alternative Justifiable Expenditure, and the Use of Facilities methods. This agreement and subsequent understanding standardized major principles and practices for allocations at multipurpose projects.

d. Principles and Guidelines. The P&G address cost allocation briefly, and specifically permit the SCRB and Use of Facilities methods. (P&G 1.9.3)

e. Principles and Methods of Allocation. Selection of the method to use in each case, except where specified by legislation, must be based on informed judgment. For this reason, it is considered undesirable to set rigid rules for assigning project costs among project purposes. Although there are exceptions, the Corps considers the SCRB method as preferable for general application. In most instances this method provides an equitable distribution of total project cost among the different project purposes.

(1) The objectives of the SCRB method of cost allocation are:

(a) To allocate to each project purpose all costs associated with inclusion of that purpose in the project. This amount, referred to as incremental or separable cost, is the minimum that would be allocated to the included purpose.

(b) To allocate costs in such a way that costs allocated to a purpose do not exceed the benefits associated with inclusion of that purpose or the costs of the most economical alternative way of providing equivalent benefits. This amount would be the maximum that would be allocated to the included purpose.

(c) To distribute joint (or common) costs among all project purposes in such a way that each purpose shares equitably in the advantages of multiple-purpose development as compared with alternative single-purpose developments.

(2) While the procedure is complex, the principle is simple. All project costs are distributed among the purposes on the basis of the alternative costs that could justifiably be incurred to achieve equivalent benefits by alternative means. The costs used in an allocation include investment costs and operation, maintenance and replacement costs, all reduced to a common time basis. These costs may be expressed either as a present worth amount or an average annual amount. For allocation purposes, costs and benefits are presented as average annual equivalents.

(3) Although the above principles and methods followed by the Corps in allocations have been developed largely in connection with the determination of power costs, allocations are also necessary where other reimbursable functions such as water supply and irrigation are involved. Also, a cost allocation is required if the project includes future water supply and/or recreation to determine if the costs assigned to these purposes are within legal and administration

limitations. Essentially the same principles and standards apply for these other purposes.

(4) Allocation of actual operation and ordinary maintenance expenses is consistent with the basic allocation.

5-12. Identification of Non-Federal Sponsor Responsibilities in Planning Reports. Section 221 of the Flood Control Act of 1970 requires that a written agreement be executed between the Secretary of the Army and the non-Federal sponsor to identify the "items of local cooperation" for Corps projects. Section 102 of WRDA 1986 added the requirement for feasibility study cost sharing. The purpose of this paragraph is to define what different types of planning reports must say regarding general and specific responsibilities of the non-Federal sponsor. This paragraph identifies those responsibilities in general terms. The specific requirements of non-Federal sponsorship vary according to the purpose(s) of the project. For definition of what those specific requirements are, refer to the appropriate project purpose chapter(s) (Chapters 12-20), presented later in this pamphlet.

a. Legal Basis. It is important to identify general and specific responsibilities of the non-Federal sponsor in the recommendations of the planning report because that document will serve as the basis of understanding among the Federal Government, the non-Federal sponsor and third parties who have an interest in or are affected by the project. It is a general principle that the requirements specified in the law or document prevail despite any administrative direction or guidelines issued previously or thereafter.

b. Preauthorization Studies.

(1) Feasibility Studies. Feasibility studies, irrespective of funding source, will identify the extent of non-Federal sponsor responsibilities and the ability of the non-Federal sponsor to fulfill its responsibilities. In the reconnaissance phase of the feasibility study, the sponsor will provide a letter of intent (LOI) stating both that the sponsor intends to sign the Feasibility Study Cost Sharing Agreement (FCSA) and understands the cost sharing requirements and financing options for project implementation. Prior to initiating the feasibility phase of the study, the Federal Government and the non-Federal sponsor will execute the FCSA, based on the Management Plan which delineates the Federal and non-Federal responsibilities for the study and prospective project. During the feasibility phase study, and prior to the Feasibility Review Conference (FRC), a preliminary draft PCA, a preliminary financial capability statement and supporting financial information will be developed to establish implementability of the project, as prescribed by the P&G. The process of developing the draft PCA will ensure that the non-Federal sponsor has a clear understanding of the type of agreement that they will be expected to sign and its requirements prior to the start of construction. The draft PCA will not be included in the draft feasibility report or provided with it; rather, the PCA will be a subject for the FRC. In addition, if flood control or agricultural water supply purposes are to be included in the recommendations of the study, the report will include an ability to pay analysis.

(2) Preconstruction Engineering and Design (PED). PED studies presume that the recommended project will be authorized for construction. Accordingly, PED studies should follow the same rules defined in subparagraph e below (Postauthorization Studies).

c. Continuing Authorities Studies. For potential projects pursued under the Continuing Authorities Program (Sections 14, 103, 107, 111, 205 and 208), the same procedures apply as for Feasibility Studies above, except that the financial analysis requirement are adjusted for the complexity and cost of the project involved. Often, the construction of these projects can be completed under one contract and, therefore, the non-Federal cooperation is provided in advance of construction. In such cases, the financial analysis requirement can be satisfied by a statement of financial capability and financial plan in the form of a letter from the sponsor and a short narrative in the "Findings and Conclusions" section of the Detailed Project Report. In more complicated cases, appropriately more of the financial analysis requirements for a feasibility study will apply.

d. Ecosystem Restoration Studies (Section 1135 of WRDA 1986; Section 204 of WRDA 1992; and Section 206 of WRDA 1996). Prior to approval to initiate a study under these authorities, the non-Federal sponsor must provide a letter of intent stating its understanding of the cost-sharing requirements and its capability and willingness to participate as the sponsor for the proposed project. The project approval document will be accompanied by a draft PCA which has been fully coordinated with the sponsor and a financial analysis. When a feasibility phase report is prepared, the report will contain a discussion of the sponsor's responsibilities.

e. Postauthorization Studies. A final PCA is required, pursuant to Section 221, as a prerequisite to initiating construction. Consequently, during the postauthorization planning, the emphasis is on ensuring that the items of non-Federal cooperation for the authorized project, as identified in the report cited in the authorizing language, are specified and that the non-Federal sponsor can comply with them. Inasmuch as a considerable period of time may have passed since the project was authorized for construction, the items of non-Federal cooperation should be reviewed for compliance with current policy. When a policy change affects an item of non-Federal cooperation, the post authorization study should address the question of whether the policy change is applicable to the authorized project and whether the non-Federal sponsor is willing to continue into construction of the project subject to the change in the particular item(s) of non-Federal cooperation. The postauthorization planning document will recommend items of non-Federal cooperation only if they are directly related to: implementation of the recommended Federal project; achievement of specified objectives of the Federal project; or realization of benefits attributed to the Federal project. Cash contributions generally are expressed as percentages of construction cost to allow the Chief of Engineers to make final determinations without further Congressional action. It is not necessary to list all routine requirements of generally applicable Federal legislation such as those for pollution control, civil rights and safety. PCAs are not required for projects to construct or improve the inland waterway transportation system where all of the costs are assigned to the Federal Government. To add recreation improvements though, PCAs are required.

f. Payment. Project costs are sometimes shared by assignment of specific items of work, such as acquisition of land, provision of

relocations, etc. In some cases, however, cash payments are required toward first costs, as in non-Federal contributions required toward certain purposes and in return for special benefits (see subparagraph 5-13.c below). Normally the payment is in a single lump sum, though Section 40 of Public Law 93-251 provides general authority to permit non-Federal interests to make annual payments of required contributed funds as construction proceeds. While legislative authorities permit extending repayment for certain projects under certain conditions, the Corps views such arrangements as contrary to the intent of non-Federal cost sharing, which is to maximize the number of projects that can be undertaken in each year's Federal appropriations. The terms of payment should be specified in the planning report. Authorities for advance project work by non-Federal sponsors subject to subsequent reimbursement or credit toward items of non-Federal cooperation are available and may be considered when helpful in achieving timely accomplishment of needed actions (see paragraphs 8-6 and 13-12). Otherwise, there is no general authority to allow non-Federal sponsors to substitute work-in-kind for required cash contributions. Any such substitutions, to be allowable, must have been provided for in report recommendations or specified by the subsequent project authorization language.

5-13. Recommendations. The recommendations in a study report are based upon the study findings and are a concise statement of the plan or improvements recommended, or of no Federal participation at this time, as appropriate. When Federal participation is recommended, clear, standard wording in simple statement form is used since it becomes the basis of authorization and is thus, for all practical purposes, draft legislation. Reliance is placed on a simple citing of the selected plan presented in the report. Similarly, citations of Acts bearing on non-Federal participation is simple and paraphrasing avoided. When separable elements of a plan are independently justified and functional, reports may recommend implementation of the plan by separable element. Such recommendations provide for obtaining written agreements for items of local cooperation for each element and proceeding with construction of that element independent of remaining elements.

a. Nature of Recommendations. Recommendations for Federal participation generally consist of two parts. The first is the authority being sought for the Chief of Engineers to undertake, modify, and maintain, as appropriate, the cited inprovements as Federal projects or programs, with discretionary authority for modifications (and any clarifying provisions needed to cover desirable project-related divergences from general-law-related Federal practice). Second, is the specification of non-Federal participation in construction, operation, maintenance and the requirements of non-Federal assurances for other necessary cooperation, such as the prevention of encroachments on flood control channels. Where cost estimates are shown, they will be presented in the context of estimates for information and not as binding amounts.

b. Changes in Recommendations. The initial recommendations are those in the basic report, which is usually that of the District Commander, and will be consistent with legislative requirements, precedents, and policies. They may be modified in the subsequent correspondence. It is acknowledged in the Chief's report that the recommendations therein are subject to modification before they are transmitted to Congress as proposals for authorization and implementation funding.

c. Special Beneficiary Situations. Special beneficiary situations will be identified in preauthorization studies, and the basis for including or excluding special non-Federal cooperation will be stated in the report and its recommendations. The policy basis is Section 2 of the River and Harbor Appropriations Act approved 5 June 1920 (33 U.S.C. 547) which specifies that "Every report submitted to Congress ... shall include a statement of special or local benefits ... with recommendations as to what local cooperation should be required, if any, on account of such special or local benefits." Generally, the Corps does not support projects that serve only property owned by a single individual, commercial/business enterprise, corporation, or club or association with restrictive membersip requirements (see paragraph 12-6). When a project provides large benefits to a few beneficiaries, the Corps gives close scrutiny to the existence of:

(1) windfall land enhancement benefits accruing to limited special interests resulting from reduction of flood hazards;

(2) land creation benefits resulting from harbor projects (see ER 1105-2-100, paragraph 4-7); and

(3) special savings to land owners in the cost of fill material or enhancement of land values as a result of disposal of material excavated from project areas.

5-14. Release of Information on Civil Works Investigations and Reports.

a. Disclosure of Information. It is Federal policy that the maximum amount of information shall be made available to the public. Disclosure of information is the rule and withholding of information is the exception. The Freedom of Information Act Amendments of 1974 (Public Law 93-502) include a requirement, among other provisions, that a decision to release or not to release records must be made "within ten days" (as defined therein). The Federal Civil Works function requires preparation of many types of reports leading to a variety of actions. Information must be gathered and used to permit a thorough analysis, reach sound conclusions, and make appropriate recommendations. Information needed includes market and sales information; present and future commodity movements; plans of expansion and new locations of industry; operating costs of transportation companies; damage estimates of real and personal property; and real estate appraisals. These data are vital to preparation of the Civil Works reports that lead to recommendations concerning sizeable expenditures of public funds. While in many instances the necessary information can be obtained only on a privileged "in confidence" basis, the Corps will endeavor to release sufficient information to permit public scrutiny of the non-privileged data supporting the reports, especially those recommending expenditures of public funds. Questions as to the propriety of release of data considered sensitive or privileged must be identified and forwarded to the Chief of Engineers, the initial denial authority (IDA), within three working days following receipt of the request for a determination.

b. Collection and Use of Privileged Data.

(1) Whenever feasible, information will be requested and obtained in such a manner that it can be released to the public.

(2) Any information which has been obtained with the express understanding it will not be disclosed will be used in a manner that will protect the privileged nature of that information.

(3) Upon request, the maximum information consistent with the above will be made available to the public from the Corps Civil Works records.

c. Releasable Information. The following types of data can be made available upon request:

(1) Final reports in response to Acts of Congress and Resolutions of Congressional Committees.

(2) Complete records of public hearings, including transcripts, correspondence, and information from the public except any requested to be held in confidence.

(3) Reports of the District and Division Commanders after issuance of the public notice, or approval of the report by HQUSACE.

(4) Letters and information to and from the public regarding any type of Civil Works reports except those containing a statement that the contents are to be held in confidence.

(5) Material previously published for public use.

(6) Engineer Regulations (ERs) and Engineer Manuals (EMs) on Civil Works activities.

d. Non-Releasable Information. The following types of information will not be released by the action officer but must be forwarded to the IDA for a determination:

(1) Trade secrets, inventions and discoveries, or other proprietary data. Formula, designs, drawings, and other technical data submitted in confidence in connection with research, grants, or contracts.

(2) Items specifically exempted from disclosure by statute.

(3) Privileged or commercial and financial information obtained expressly as confidential (for such time as the person furnishing the information specifies that it is privileged).

(4) Interagency and intra-agency memorandums and letters which would not be available by law to a private individual in litigation with the DOD or any agency of the Department.

(5) Internal letters, memorandums, and other internal communications within the Civil Works element of the Corps of Engineers that contain evaluations, opinions, recommendations, or proposed solutions, and are primarily of a decision-making nature. These include staff papers containing advice, opinions, suggestions or recommendations preliminary to decision or action by the Chief of Engineers and the Department of the Army.

(6) Records, papers and advice exchanged internally in preparation for administrative settlement of potential litigation. Evaluation of contractors and their products which constitute internal recommendations or advice and which involve a significant measure of

judgment on the part of evaluating personnel.

(7) Advance information on such matters as proposed plans to procure, lease or otherwise hire and dispose of materials, real estate, facilities, or functions when such information could provide undue or unfair competitive advantage to private personal interests.

(8) Design Memoranda for Real Estate, Gross Appraisals for Real Estate, Public Use Plan, Land Requirements for Public Use, and Master Plans until final acquisition of lands covered has been completed.

(9) Data on commodity origins and destinations, tonnages, costs, etc., if it would identify specific firms or persons and thereby disclose or reveal other privileged information.

(10) Drafts of reports in the process of preparation presenting unresolved questions are not released to the public without prior HQUSACE approval. This does not include completed drafts which, in accordance with ER 1105-2-100, must be coordinated with interested agencies and the public in order to obtain views needed as input to selection of the reporting officer's recommendations. In particular, care is taken that final reports requiring notification of the Office of Management and Budget and the Public Works and Appropriations Committees of Congress are not released prior to completion of such notifications. This does not preclude necessary coordination with state, local and Federal agencies who are requested to withhold public release of such information prior to completion of the required coordination. Special care is taken to avoid releasing project proposals which are often changed during the review and approval process. Premature disclosure of such preliminary proposals is a disservice to both the public and to the Corps. (AR 340-17)

5-15. Sale of Corps Civil Works Publications and Reports. Public Law 85-480 authorizes publishing and sale of information pamphlets, maps, brochures, and other material on river and harbor, flood control, and other Civil Works Activities, including related public park and recreation facilities under the jurisdiction of the Chief of Engineers.

a. One or more gratuitous copies of publications are available upon request by industry, private organizations, or the general public provided stocks permit and there are no restrictions on release, such as inclusion of classified, protected, proprietary, or copyrighted information.

b. Quantities distributed per request will not exceed 50 copies. If production cost of the copies is less than $50, the quantity limitation does not apply.

c. When considered appropriate, a fee may be charged for the copies. See AR 37-60 for a schedule of fees and charges.

d. Sale price cannot be less than cost of reproduction. The cost formula authorized by Title 44 of the United States Code for use by the Superintendent of Documents, Government Printing Office, is applied. The components of the formula are: Cost of press time, cost of paper, cost of bindery operations, and a 50 percent surcharge added to the total of the first three items. The sale price is obtained by dividing the total cost of these components by the number of publications produced.

e. Proceeds received from the sale of publications are transmitted to the Finance and Accounting Officers for deposit in accordance with Chapter 4, ER 37-2-10.

f. Construction drawings and specifications can be sold to potential contractor bidders.